ThinkPad® W520 4276 (Optimus) - TopSeller

Type-model	Processor	Memory	Wide-screen display	Discrete graphics	Camera	Disk SATA GB[8] rpm	PCIe Mini Card WLAN	PCIe Mini Card WWAN/mSATA	Smart Card Reader	Finger print reader	Color calib	Bat-tery cells	Intel AMT	Intel vPro	Preload
✂ 4276-2QU	i7-2720QM	4GBx1	15.6" FHD	2000M	720p	500G 7200	Intel 6205[28]	WWAN upg				9	iAMT	vPro	Pro 64
4276-2PU	i7-2620M	4GBx1	15.6" FHD	1000M	720p	500G 7200	Intel 6205	WWAN upg				9	iAMT	vPro	Pro 64
4276-23U	i7-2920XM	4GBx4	15.6" FHD	2000M	720p	500G 7200	Intel 6205	WWAN upg	Smart	Finger	X-Rite	9	iAMT		Pro 64
4276-39U	i7-2820QM	4GBx2	15.6" FHD	1000M	720p	500G 7200	Intel 6205	WWAN upg		Finger		9	iAMT	vPro	Pro 64
✂ 4276-38U	i7-2720QM	4GBx1	15.6" HD+	1000M	720p	500G 7200	Intel 6205	WWAN upg		Finger		9	iAMT	vPro	Pro 64
✂ 4276-37U	i7-2720QM	4GBx2	15.6" FHD	1000M	720p	500G 7200	Intel 6205	WWAN upg		Finger		9	iAMT	vPro	Pro 64
✂ 4276-3AU	i7-2630QM	4GBx2	15.6" HD+	1000M	720p	500G 7200	Intel 6205	WWAN upg	Smart	Finger		9			Pro 64

- ***These small and medium business (SMB) models are part of the US TopSeller™ Program***
- ***These models have a depot repair service 3-year limited warranty***

Positioning	*Mobile workstation; two spindles*
Processor	**Intel® Core™ i7-2620M processor (dual-core, 2.70GHz, 4MB Cache),** DDR3 memory controller (up to 1333MHz), Intel Turbo Boost 2.0 (3.40GHz), HT technology **Intel Core i7-2630QM processor (quad-core, 2.00GHz, 6MB Cache),** DDR3 memory controller (up to 1333MHz), Intel Turbo Boost 2.0 (2.90GHz), HT technology **Intel Core i7-2720QM processor (quad-core, 2.20GHz, 6MB Cache),** DDR3 memory controller (up to 1600MHz), Intel Turbo Boost 2.0 (3.30GHz), HT technology **Intel Core i7-2820QM processor (quad-core, 2.30GHz, 8MB Cache),** DDR3 memory controller (up to 1600MHz), Intel Turbo Boost 2.0 (3.40GHz), HT technology **Intel Core i7-2920XM processor (quad-core, 2.50GHz, 8MB Cache),** DDR3 memory controller (up to 1600MHz), Intel Turbo Boost 2.0 (3.50GHz), HT technology
Memory	*dual-core model:* 16GB max[7], two 204-pin SO-DIMM sockets *quad-core model:* 32GB max, four 204-pin SO-DIMM sockets *All:* PC3-10600 1333MHz DDR3, non-parity, dual-channel capable
Optical	DVD burner, 12.7mm Ultrabay Enhanced, removable
Ultrabay	One bay for removable devices, Ultrabay Slim-compatible, 12.7mm high, bottom access
SATA disk	*Some:* Solid State Drive (SSD) / SATA 3.0Gb/s, 2.5" wide, 7mm high *Some:* HDD / SATA 3.0Gb/s, 2.5" wide, 7mm or 9.5mm high, Active Protection System™ *All:* removable, upgradable, supports the second disk, Shock Mounted Hard Drive
mSATA™ SSD	None
Widescreen display	*Some:* **15.6"** (396mm) **HD+ (1600x900) color**, anti-glare, LED backlight, 220 nits, 16:9 aspect ratio, 500:1 contrast ratio, 60% Gamut *Some:* **15.6"** (396mm) **FHD (1920x1080) color**, anti-glare, LED backlight, 270 nits, 16:9 aspect ratio, 500:1 contrast ratio, 95% Gamut
Color calibration	*Some:* huey™PRO Colorimeter by X-Rite® color calibration sensor in palm rest
Camera	HD720p resolution, wider view angle, low light sensitive, fixed focus
Graphics	NVIDIA® Optimus™ technology, auto-switch between discrete and integrated graphics, **Intel HD Graphics 3000** in processor, and **NVIDIA Quadro® 1000M** or **2000M**, PCI Express® x16, **2GB** memory, external analog monitor support via VGA DB-15 connector and digital monitor support via DisplayPort (supports single-link DVI-D via cable 45J7915); supports three independent displays; *Maximum external resolution:* 2560x1600 (DisplayPort)@60Hz; 2048x1536 (VGA)@85Hz; 1920x1200@60Hz (single-link DVI-D via cable 45J7915)
Keyboard	7 row, 89-key, ThinkVantage button, spill-resistant, multimedia Fn keys
TrackPoint®	TrackPoint® pointing device, "Press-to-Select," Internet Scroll Bar[13], magnifying glass
Touchpad	UltraNav™, wide touchpad below keyboard, Tap Zones, scrolling regions label, multi-touch
ThinkLight™	Illuminates the keyboard to improve visibility in low-light conditions
Dimensions (WxDxH)[3]	*HD & HD+:* 14.68" x 9.65" x 1.25-1.40"; 372.8mm x 245.1mm x 31.8-35.6mm *FHD:* 14.68" x 9.65" x 1.29-1.44"; 372.8mm x 245.1mm x 32.8-36.6mm
Weight[2]	*6-cell:* starting at 5.40 lb (2.45kg); *9-cell:* starting at 5.75 lb (2.61kg)
Case material	*Display cover:* Carbon-fiber / Glass-fiber hybrid; *Bottom:* Glass-fiber reinforced plastic without paint
Battery - type	Lithium Ion 6-cell or 9-cell, supports optional Slice battery (57Y4545) as 2nd battery at bottom
Battery - life[10]	*6-cell:* up to 6.5 hr; *9-cell:* up to 10.8 hr; *9-cell plus slice battery:* up to 21.6 hr
Chipset	**Mobile Intel QM67 Express Chipset**
ExpressCard	One slot (ExpressCard/34)
Smart Card Read	*Some:* Smart Card reader
Multicard Reader	4-in-1 reader (MMC, SD, SDHC, SDXC)
Ports	Two USB 3.0 (blue), one Powered USB 2.0 (yellow), one USB 2.0/eSATA combo port, external monitor (VGA DB-15, DisplayPort), ethernet (RJ-45), IEEE 1394 FireWire 400 (4-pin connector; 1394a-2000 standard)
PCIe Mini Card	Two PCI Express Mini Card slots
WLAN[4]	11a/b/g/n, PCIe Half Mini Card, Intel Centrino® Advanced-N 6205, 2x2
WWAN	Wireless WAN upgradable
Modem	56K V.92[6] modem
Bluetooth™	Bluetooth 3.0 wireless, LED indicator
Ethernet	Intel 82579LM Gigabit Network Connection (Lewisville), PHY, PCIe x1
Intel AMT	*Some:* Intel Active Management Technology (iAMT)
Audio support	High Definition (HD) Audio, Conexant 20672 codec / stereo speakers, 1 watt x 2 / volume up, down, mute buttons / dual array mic, mic mute button, combo audio/mic jack
Security	Power-on password, hard disk password, supervisor password, security keyhole
Security chip	Trusted Platform Module, TCG 1.2-compliant
Fingerprint reader	*Some:* UPEK Fingerprint reader on palm rest, swipe sensor, LED indicator, Power On Authentication, supports the security chip
Limited warranty[12]	**3-years**/1-yr battery - depot repair service / service upgrades[22] available

Preloaded operating system[20]
- Genuine Windows® 7 Professional 64

Ready to install applications[14] (all OSes; only some listed)
- Rescue and Recovery™
- Access Connections™
- Fingerprint Software (fingerprint models)
- Password Manager (fingerprint models)
- ThinkVantage System Update
- ThinkVantage Power Manager
- ThinkVantage Toolbox

Preloaded applications[14] (all OSes; only some listed)
- Norton™ Internet Security 2011 (30 days of virus definitions)
- Adobe® Reader®
- Skype™ for Windows
- Windows Live™ Essentials
- Microsoft Office 2010 preloaded; purchase product key to activate
- Corel® WinDVD® (DVD±RW)
- Corel Burn.Now™ Lenovo Edition (DVD±RW)
- Corel DVD MovieFactory® Lenovo Edition (DVD±RW)
- huey™PRO Monitor Color Correction by Pantone®/X-Rite® (color calibration models)

Supports ThinkVantage® technologies

170-watt AC adapter
ThinkPad Roll Cage (one-piece magnesium frame)
EPEAT™ Gold rating
ENERGY STAR® 5.0-compliant
RoHS-compliant
International Warranty Service[17]
24 hour x 7 day[18] toll-free support during the warranty period[12] via 800-426-7378

For compatible accessories, please go to O-W520 sheet;

For ThinkPlus™, [22] service upgrade options, please go to S-TA sheet

See footnotes for more detailed information
US models announced February 22, March 1, or June 21, 2011
✂ US models withdrawn effective November 2011

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